



Traditional vs. Digital Agriculture: Evolution, Technologies, and Sustainability



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15pm-16:30pm, Friday, April 10 – July 17



Seminar Room 101, Graduate school of Agriculture

Special lecture(1 hour) will be provided in July

Course Summary

This course will be given in English.

The evolution of agriculture has been marked by significant technological advancements that have shaped farming practices over the centuries. As the need for more efficient and sustainable farming practices has grown, agriculture has transitioned from traditional systems to those incorporating technologies such as Geographic Information System (GIS), automated machinery, and data-driven digital technologies to optimize crop production and resource management from farm to fork. The traditional farming practices and underutilised crops play a vital role in Asian and African farming systems ensuring the food security. This new era in farming utilizes real-time data from sensors, drones, and satellite systems to monitor crop health, optimize irrigation, and predict yields with unprecedented accuracy. This course will develop comprehensive understanding of underutilised crops and traditional crop husbandry, as a comparative study of the theoretical and practical applications of data-driven modelling in modern farming systems.

Course Schedule

The schedule may change slightly depending on the progress.

Date & Period	Contents	Date & Period	Contents
April 10 th	How do we obtain a bowl of rice?: Overview of the world agriculture, its foundations, and agricultural evolution	June 5 th	Overview of Decision Support System for AgroTechnology Transfer (DSSAT)
April 17 th	Overview of underutilised crops and their agronomic and nutritional potentials giving examples from research literature in Asia and Africa	June 12 th	Crop model running exercises
April 24 th	Traditional agriculture practices, part 1	June 19 th	Simulation of potential maize production using DSSAT
May 1 st	Traditional agriculture practices, part 2	June 26 th	Simulation of water-limited and N-limited yields using DSSAT
May 8 th	Strengths, challenges and limitations of traditional agriculture practices	July 3 rd	Data-driven systems for digital farming
May 15 th	Innovative technologies for sustainable farming systems	July 10 th	Smart agriculture solutions for soil-crop systems
May 22 th	ICT for data acquisition in agriculture	July 17 th	Feedback session via Zoom
May 29 th	Introduction to crop modelling		

Please contact the International Exchange Section if you have not registered for this course on KULASIS but would like to take it.